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A Journal of Scottish Natural History

Editorial Committee:

J.A. Gibson

John Hamilton

John C. Smyth

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109th Year 1997

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EDITORS

J.A. Gibson
John Hamilton
John C. Smyth

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THE ROMANS AND STRATHCLYDE: THE ROAD SYSTEM
9. The Road to the Sea at Ardlamont, Cowal, Argyll

By FRANK NEWALL
Renfrewshire Natural History Society

and ELIZABETH B. RENNIE
Cowal Archaeological Society

Preliminary

In 1970, on completion of excavations at Outerwards (Newall, 1976) at a time when the Roman Clyde defence system lacked the definition possible by 1991 (Newall, Lonie and Sinclair, 1991), an excavation was conducted on Goldenberry Hill to examine an enclosed height and explore its possible use as a signalling point (Newall and Lonie, 1990a: 20-21). Subsequently in 1971 an earthwork on Cnoc nam Fiantam, the Hill of the Giants, on Strone Point was trenched. Here at the hinge of the Clyde, from which the upper reaches are visible to beyond Dumbarton and the inner estuary as far as Portencross, we probed the possibility of a Roman presence, but with negative results.

As this last excavation was conducted on behalf of the Cowal Archaeological Society, those members who assisted were advised to consider further the possibility of Roman remains in Argyll. Ironically, then unknown to us, in 1970 an ancient road at Ardlamont, considered to be possibly Roman, had been sectioned and rejected.

The Road to the Sea

In 1980 Miss Rennie heard from Mr. Sam Wright of Kames, a former gamekeeper, that a Roman-like road had been sectioned near Ardlamont. We subsequently learned from Mr. Wright that he had been asked to report anything in his area of possible Roman origin to his friend the late J.M. Davidson, initiator of that series of Roman surveys which were published by Glasgow Archaeological Society in 1952 (Miller, 1952).

Mr. Wright duly reported the existence of a culverted road between ditches north of Ardlamont. Mr. Davidson did not live to see this, but in 1970 a colleague

tested it "on behalf of Cowal Archaeological Society". Finding it to be a relatively thin layer of laid clay over light metalling with little trace of wear, he concluded that it may have been an unfinished road of no great age, and certainly not earlier than the eighteenth century, although he expressed surprise at the 4.0 inch (10.1 cm) thickness of peat over it.

His conclusion was perhaps not surprising, for at that time the behaviour of Roman roads over peat mosses, although recorded by us, had not been stressed. Maxwell (1984: 32) points an example.

Mr. Wright stated that the road was said to go to the sea, and to his own knowledge ran south from woodland to Corra farmhouse, then ran to the beach. To claim such a terminus despite its alignment on Corra and, beyond, closely towards Ardlamont House, each an ancient holding, suggested an origin earlier than the erection of these sites towards which any later observer would have presumed it to have been directed. We therefore decided to examine the road thoroughly.

Fieldwork

Four enclosed areas are involved:

(a) Two fields south of Corra farmhouse and between it and the raised beach. These have a common ancient west boundary, now a dyke and fence following a strictly linear runnel to the west, and are separated by the early road to Ardlamont House (see below).

(b) The field west and north of the farmhouse.

(c) Moorland, now forested, between this field and woodland east of the B 8000 road.

(d) This stretch of forest as far as the Allt á Chaorrain. In this area, c. 1950 before plantation, Mr. Wright claimed to have found two cunzies (culverts) under the road, and where it seemed to peter out towards Allt á Chaorrain he insisted that it was "turning to the hills".

Firstly we visited the moorland (c) at the fence where the road emerged from woodland (d), NR 96966681. A short distance south lay the 1970 section, whence the road ran south-east aligned on the west side of Corra and, beyond, on the sea-cliff edge at Ardlamont Point south of Creag Mhor.

The road near the fence was terraced into a slope down from east to west, and ran between drains 17 feet 6 inches (5.3 m) apart. Slight hollowing of the long overgrown surface indicated more recent secondary traffic.

Some 75 metres to the south, where the land levels off, the road had sunk in marshland, but near the north boundary wall of the Corra field (b) the land again slopes. While the general fall is from east down to west, for some distance north of the wall there is a local reversal of slope. Along this stretch the road eccentrically crosses a much disrupted low circular turf dyke, NR 97116656, and a little farther south is itself crossed by a large travelling turf dyke, NR 97136650, which also crosses the course of the earlier dyke. The major dyke continues to the west of the B 8000 road, and to the east rounds the shoulder of Cnocan á Chorra to merge with dykes north of Glenahuil, beyond which runs the early boundary dyke of Achadachoun, NR 98136742. On the west shoulder of Cnocan á Chorra are the faint traces of another possible circular enclosure, while two others lie between Cnoc na Carraigh and Achadachoun.

South of the travelling dyke the road is traceable through dense whin bushes to c. NR 97186644 north of the Corra field wall, (b). The side drains cease some distance north and south of the turf dyke and were obviously not cut as roadside ditches but as more recent drains, perhaps to prevent water damming alongside the road. Through field (b) towards Corra farmhouse a faint ridge may be followed. Viewed from the west this is clearly seen to cross the north half of the field. This coincides with a crop mark in line with the road, from NR 97266628 to NR 97336618, as seen on an aerial photograph. Just west of the farmhouse a second crop mark, NR 97956600, aligns more southerly.

To the south, the west boundary of the fields (a) is closely in line with this crop mark. For a short distance, despite seepage from the runnel and cattle trampling, there is the hint of a slight rise and beneath the mud the ground is firm, NR 97406588. Downfield, despite a dense growth of whin bushes, the animals have continued the alignment for some distance through the whins. Beyond, the old road to Ardlamont forms the boundary between the fields. Here, still west of the runnel, there is a spread of metalling far beyond the limits of this 16 feet (4.88 m) wide road, NR 97446565.

Near the south limit of the lower field a firm cambered ridge, now on the east side of the common west boundary, runs south-east towards a scarp which descends to the raised beach, NR 97506555. This alignment is at variance with the north-south run of the field rigs. Down the scarp a cutting runs south-east, then south-west to the raised beach below, but no trace survives across it. However,

across the present beach runs a firm cambered gravelled ridge, NR 97526539 - NR 97566529, at least 16 feet (4.88 m) wide and sufficiently high to stand out clearly, a recognisable feature, as seen from the far east end of the beach. This gives way well below high tide mark to a stretch of cobbling tightly rammed. Beyond, but not fully uncovered at low tide, runs an east-west rock ridge.

It would seem that the road had never been directed on Corra or Ardlamont. Its terminus *ante quem* was the major turf dyke comparable with numerous mediaeval land boundaries. It was clearly of some antiquity.

In further surveys we established that it had never reached Kilbride, but as the aerial photograph faintly suggested, in support of Mr. Wright, had begun to turn uphill towards the north-east. Within the wood (d) at the south end, a broad mound ran between hollows, c. 18 feet (5.5 m) apart, into dense growth. A further length, steeply terraced, was 15 feet (4.6 m) wide with a hollow track along the uphill, east side. Beyond, it appeared to begin to turn towards higher ground to the north-east. Here a contraction from 15 feet (4.6 m) to 12 feet (3.7 m) with water seepage on each side may have signified the presence of a culvert.

In final surveys, all heights towards which the road might have been turning, and which were free of forest, were visited. On the west shoulder of Tom Odhar, NR 96906750, across a wide break and climbing from west to east, was a low mound 10 feet (3.0 m) wide with a 14 feet (4.3 m) hollow along the upper north side. It was possible to trace the hollow uphill towards the summit, but it appeared to fade short of the crest. There, c. NR 97036754, mutilated by forestry drains and masked by trees were traces of the dissected arc of a turf mound 6.0 - 8.0 feet (1.8 - 2.4 m) wide, possibly rounding the east side of a circular enclosure. There was no trace of a ditch.

Dense growth prevented any search towards the west. Since no other road has been recorded in that direction, it is at least feasible that the mound and hollow somehow connects with the road through woodland below. A wide circuit may have been enforced by the steeply sloping ground west of Tom Odhar. If the roads connect, it is just possible that the broad hollow along the uphill side is the quarry ditch (see Excavations, below) widened by erosion on the extreme slope.

Estate Records

In March 1981 permission to excavate was freely granted by Mr. Robert A. Watson of Ardlamont, with an invitation to discuss the road and examine some estate finds. In July 1981 Frank and George Newall were welcomed at Ardlamont

House by Mr. Watson and his brother Calum, viewed estate plans, examined finds from the estate, read the correspondence relative to the 1970 trial trench, walked the environs of Ardlamont House and visited some recently unearthed foundations to the south-west, covered the approaches from the west, and finally visited the early road at Corra before visiting the earthwork, perhaps mediaeval, at Camp Cottage.

Among finds made on the estate, including early English gold with some baser Scottish and Irish coins, were denarii of Caesar, Claudius, Nero, Trajan and Hadrian, said to have been found on the estate some fifty years previously but, as Mr. Watson stressed, without written evidence to support the statement.

The visit was of considerable value in that we were able to follow the early road to Ardlamont House. It was obvious that "the road to the sea" had never been part of the estate system.

The Road to Ardlamont (O.S. Pathfinder 413, NR 86/96)

Ardlamont House is an early nineteenth century structure, rebuilt in 1819, flanked on the east by a seventeenth century wing and on the west by a parallel wing of the eighteenth century. We are told that the seventeenth century buildings lay to the north-east (McKechnie, 1938: 222). During estate improvements Mr. Watson unearthed foundations incorporating a possible ice-house to the south-west of the mansion, closer to and perhaps contemporary with the earlier approach over an eighteenth century type bridge.

Today the house is approached from the B 8000 road to the north, which executes three extremely abrupt and dangerous bends at NR 97286587, NR 98206588 and NR 98486548. The first perpetuates a former T-junction of a track from Corra farm with the original main road, which continued south to swing south-east and pass above the head of the beach towards the bridge mentioned above.

Thence it almost certainly once continued south of Ardlamont House straight to NR 98486548, where a track from Woodend to the north-west joined it in a former T-junction, from which it continued to Ardlamont Ferry, throwing off branches north to Kildavaig and south to Point Farm. By 1421, Ardlamont, Kildavaig and Point of Ardlamont formed one parcel of land (McKechnie, 1938: 63, 362), hence apart from topography it is probable that the general pattern of tracks was formed in the Middle Ages. In this scheme there is no place for "the road to the sea".

In the seventeenth century, when improvement was considered and the Highway Acts of 1669 and 1686 were passed, the main road ran from Point of Ardlamont to Otter Ferry. In 1696 bridges were to be built north and south of Kilfinan, and in 1710 the road between Ardlamont and Otter Ferry was to be upgraded. The present road, north of Ardlamont House via Corra, doubtless followed improvements to the B 8000 road in the early nineteenth century and the building of the east coast road south from Kames. Thus Georgian Ardlamont is matched by the architecture of Woodend, now on the north side of the new short cut where it was laid from Corra to join the former termination of the Woodend track at the abrupt bend at NR 98206588. On the north side of the new cross-road, Corra farmhouse, dated 1846, replaced that of the 1770 rental roll.

In the former beach-head road to Ardlamont we have a fossilised example of the improvements which followed the Highway Acts. We find a lower stretch of metalling, expanding in places to 21 feet (6.4 m), underlying an abruptly scarped road 12-16 feet (3.7 - 4.9 m) wide, composed of some 6.0 inches (15.2 cm) of beach pebbles surfaced with a layer of smaller stones beneath a spread of sandy clay, possibly trodden drift, at most 1.5 inches (3.8 cm) thick. Overall, the relatively thin humus is occasionally penetrated by the road metal. The dimensions of this beach-head road place it firmly in the early eighteenth century. Compared with this, the recorded 4.0 inches (10.1 cm) of peat over "the road to the sea" refers "the road to the sea" to a considerably earlier period.

The Act of 11th May 1710, being an "Order for Helping the Highways", covers Cowal and Mid-Argyll and names thirteen roads, the last being that between "oitter and aird Lamin". This repeated the instructions of the Acts of 1708 and 1709 for improving existing roads, but by 1730 the Commissioners of Supply ordered that the "High Roads" be made "Nine foot broad at least throughout". By 1755 the 9.0 - 10 feet roads established by 1732 were no longer suitable, and a statutory width of 20 feet was demanded. By the end of the eighteenth century, as elsewhere the "great roads" were "twenty-four feet exclusive of bank and ditch" (Mactavish, 1962).

Land boundaries

The disposition of the land divisions in the area further underlines the antiquity of the early road. Three types of constructed limits may be traced:

(a) The ancient circular much-mutilated low turf walls which enclose small portions of land.

(b) The major travelling turf dykes.

(c) The latest stone, or turf and stone, divisions. Since throughout the area these relate to the road system, often incorporating it as co-terminous, we deal with them first.

The first circuit of the marches in the area with a view to enclosure was carried out in 1729, to delimit the lands of Drum, Kilfinan and Acharossanbeg (McKechnie, 1938: 288). Prior to this, cattle were herded, but with the increase in the trade, soon to be superceded by hogg droving, it was necessary to separate grazing land from arable. Here we should indicate that the increase in the cattle trade necessarily preceded the statutes of 1661 and 1669 requiring enclosure, and that by 1724-25 the "levellers" were rioting in Lochmaben and systematically dismantling the stone and turf dykes on the Kirkcudbright estates.

At Ardlamont itself in 1752, enclosure was to be by some 900 yards (820 m) of 4.5 feet (1.37 m) high stone wall with coping (McKechnie, 1938: 304-305). In fact by the seventeenth century dykes were normally of stone, free-standing or backed with turf, or capped with turf, or occasionally with a band of turf between wall and stone coping, and had probably been used in farmyard and in field bounds for some time previously. Campbell (1985) instances such construction from 1728 onwards, the dykes being of stone, 5.0 feet (1.5 m) being the normal height; some were 5.0 feet (1.5 m) high plus two rows of turf coping. In like manner the old sinuous, often disrupted, turf dykes were being replaced by straight walls, as was the case in the 1776 re-alignment of the estate boundary between Inverneil and Stronachallen by 2.25 miles (3.12 km) of 5.0 feet (1.5 m) wall (Turner, 1983). The cost of drystone erection rendered obligatory the renewal of old boundaries by strictly straight limits.

As in the case of the road network, it is clearly seen from maps and aerial photographs that "the road to the sea" played no part in the alignment of enclosures, except at its seaward end where, long abandoned, it was itself acccepted as an early linear boundary. Otherwise, all divisions pass over it. Of these, the earliest is the large wandering turf dyke. Its dating assumes prime importance.

The large turf travelling dykes, as at Inverneil and Stronachallen, mark the mediaeval limits of estates, and numerous analogies may be cited from charters from the twelfth to the fifteenth century. The dyke in question runs east uphill

round the shoulder of Corra Hill. Beyond this, it is confused in the possibly somewhat later boundaries which continue round the north of Glenahuil to run in with the earlier turf limits of Achadachoun. Here we deal with the earliest holdings on the promontory (Lamont, 1914: 7-13).

Apart from Kames, Achadachoun and Ardlamont, the first lands mentioned in the early charters are Corra and Kilbride. It is probable that all were held by the fourteenth century, the first two in the thirteenth or earlier.

A charter of 1295 already couples "*illas duas denariatas terre mee de Kames nemi clach et de Hacheteyhewne, cum suis rectis divisis*". Here they are registered as pennylands and of no "ancient extent"; nevertheless their boundaries have been fixed. The Arde or Ardlawmonde was also probably held before this date, and for it John Laumanson paid homage to Edward the First in 1296, "*cum suis rectis divisis*".

By the next century Achadachoun is recorded as a six merk land and is coupled with Kames a four merk land. A charter of 1530 mentions the lands of Auchethewan and Kammys as "a ten mark land of old extent".

Mediaeval boundaries tended to follow natural features, such as rivers, crags etc., or run between landmarks such as standing stones or cairns, but with the occasional stretch of turf dyke where required. Over the shoulder of Corra Hill, or across the rising land between Achadachoun and Kames, there are no obvious natural divisions of any extent.

Hence it is possible that the great estate divisions were constructed, at least for Corra and Achadachoun, in the thirteenth century, and certainly before "Ardlawmond Corowrowray and Lilbride" (sic) were incorporated into the barony of Invyryn in March 1472. Patently "the road to the sea" had been disused for some time before the turf dyke crossed it. Our task was to determine its probable date.

The Excavations

In July 1981 a section (A-B) was cut across the early road adjacent to and parallel with the turf dyke, and an offset (C-D) was cut northwards through the dyke to its crest to relate it stratigraphically to the road (Figure 17a, ground plan; Figure 17b, section A-B; Figure 17c, section C-D). At this point the ground slopes gently down from west to east.

Section A-B (Figure 17b)

The section across the road was extended to cover both ditches as located, for at this point there were no secondary drains. Firstly the trench was cut down to the surface of the road and the ditches cleaned out. Then the upper levels of the road were trowelled off. These extended the full width between ditch edges and were contained by cobble kerbs, the overall width being 15 feet (4.58 m). Together they presented a spread of small metal in stiff reddish clay surfaced with gravel, in all 2.0 inches (5.1 cm) thick, and covered with a hard beaten rusty-red clay surface with slight traces of iron pan, and at most 1.0 inch (2.55 cm) thick. When this was removed, the surface of a carefully constructed road was revealed. This was then trowelled carefully, and a half section cut through the road to the basic clay subsoil (Figures 17a and 17b).

In view of the subsequent growth in the area, it is possible that a thin layer of peat was removed to provide the slightly terraced level surface, but the structure of the later dyke suggests a thin humus over clay.

About 4.0 feet 5 inches (1.35 m) from each ditch edge, a kerb of tight cobbling 1.0 foot 7 inches (0.48 m) wide, was laid, the 3.0 feet (0.9 m) space between being filled with smaller cobbles in red clay. Beyond the kerbs, shoulders of gravel in red clay (to the west) and small stones in red clay extended by gravel in yellowish clay (to the east) were contained by small cobble kerbs, 2.0 feet 6 inches (0.77 m) from the west ditch but only 1.0 foot 6 inches (0.46 m) from the east. Over this lay a hard beaten crust of rusty red clay with surface patches of iron pan, to provide a road 11 feet (3.35 m) wide and 5.0 inches (12.62 cm) deep.

Immediately above this, with little evidence of interval other than the iron pan traces and the fact that being offset towards the west it did not follow the underlying plan, was laid a heavily cobbled road, 5.0 inches (12.62 cms) thick and 7.0 feet 5 inches (2.03 m) wide, over large cobble kerbs, 2.0 feet 10 inches (1.10 m) from the west ditch and 4.0 feet 6 inches (1.37 m) from the east. This provided the core of a flatly cambered road, which was finished off with shoulders of gravel in red clay (to the west) and of successive layers of small stones and gravel in red and yellow clays (to the east). Above were the final two surfaces, first described, to complete a road 7.0 feet 6 inches (2.28 m) across a slightly cambered centre and shouldered off to a total width of 15 feet (4.58 m) between ditches.

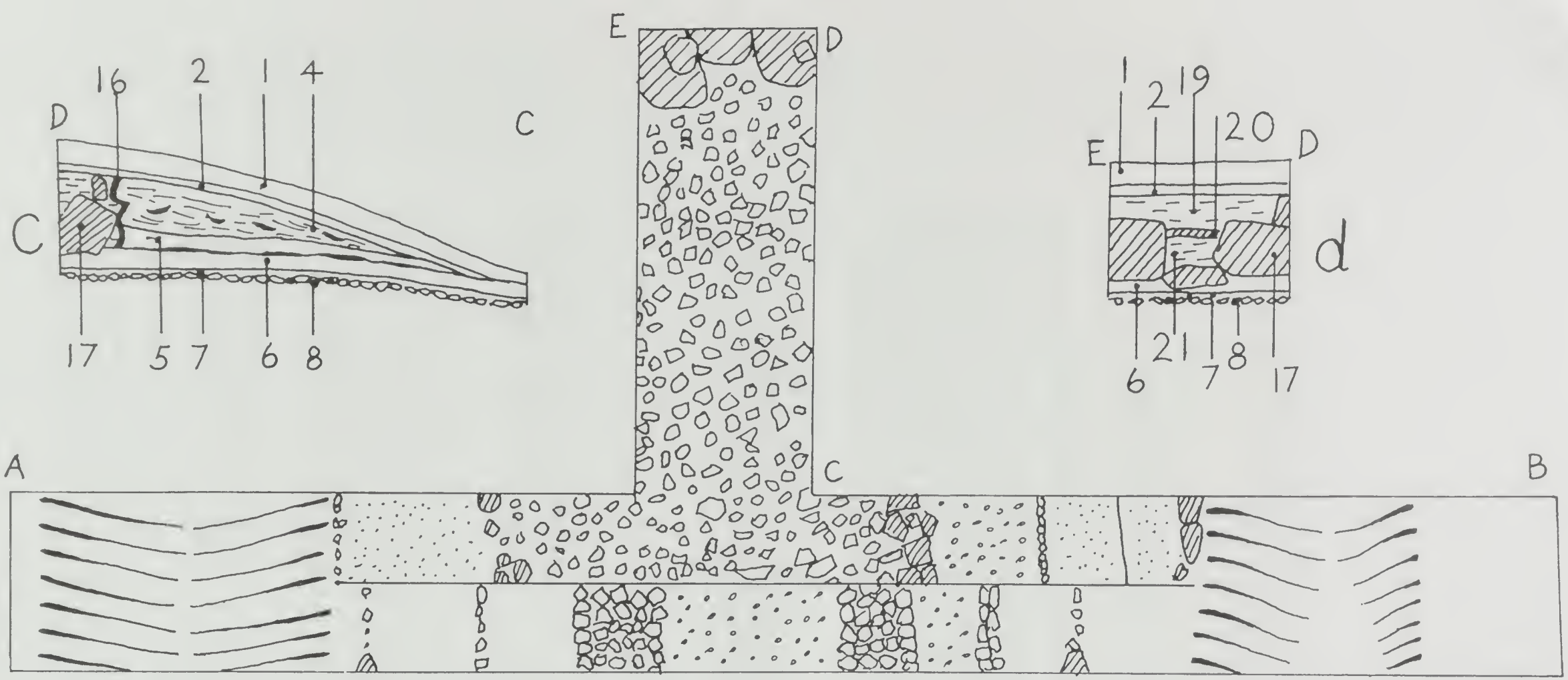
Above the road lay a 4.0 inch (10.1 cm) thickness of yellowish clayey soil merging into an overlying 2.0 inch (5.1 cm) thick spread of peaty clay beneath some 4.0 inches (10.1 cm) of peat.

Figure 17

Trench 1
and extension north into turf dyke

a) Ground plan.
b) Section through the road and ditches.
c) Transverse section through the back of the turf dyke.
d) Longitudinal section of fore part of the turf dyke.

1. Peat.
2. Peaty clay.
3. Brown clay.
4. Striated layering of reddish-clay and turf, surfaced with iron pan stains.
5. Grey turfy clay.
6. Brownish clay soil, with black vegetation surface patches.
7. Reddish-clay road surface, fortified with gravel and finished with smooth hard beaten clay covered with iron pan.
8. Road cobbles.
9. Pebbles in yellow clay.
10. Pebbles in red clay.
11. Gravel in yellow clay.
12. Gravel in red clay.
13. Hard beaten crust of red clay.
14. Fast silt.
15. Slow silt, with considerable vegetation in content.
16. Black vegetation band between fore and rear parts of turf dyke.
17. Kerb limiting rear of turf dyke fore part.
18. Dark soil wash.
19. Turfy yellowish clay.
20. Vegetation band.
21. Turfy grey clay.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The Ditches

The west ditch was 5.0 feet (1.53 m) wide by 1.0 foot 2 inches (0.35 m) deep when dug. This had silted to a depth of 1.0 foot (0.31 m) of vegetation-streaked grey soil beneath a spread of dark clayey soil which extended for a short distance up the shoulder of the road. Above this extended the yellow clay soil which thickened to 8.0 - 9.0 inches (20.20 - 22.75 cm) over the ditch, the peaty clay which maintained a 2.0 inch (5.1 cm) thickness, and the surface peat which thickened to 8.0 inches (20.2 cm).

The increased thickness of layers over a wet hollow, due to osmosis and the action of earthworms, evidences a slow accumulation. It has been the cause of misinterpretation, for as the surface above the hollow is raised and the overlying earth is softer than the surrounding layer it would appear that the depression had been dug from a higher level than was the case.

The east ditch was 4.0 feet (1.22 m) across and only some 6.0 inches (15.15 cm) deep from the contemporary level.

The Turf Dyke

The section C-D (Figure 17c) was cut into the turf dyke to its crest and taken down to the surface of the road, which was trowelled through to the metal to ensure a continuous reference datum.

Over the road surface the clayey soil level continued, here 4.0 - 4.5 inches (10.1 -11.4 cm) thick, but the overlying peaty clay layer was represented by a mere skin of patchy black staining. On this had been laid a boulder kerb of the dyke, against which was laid a grey turfy-clay bottoming to support the reddish striated clayey turf of the dyke. However, from the rear of the kerb a 2.0 inch (5.1 cm) thick band of dark peaty soil rose irregularly through the dyke to separate the reddish striated rear from a fore-section of yellowish turfy clay.

Thus the dyke may have originally stood as an almost vertical turf mound, to which a rear addition was added after it had become encased in vegetation and had slumped to some extent (Figure 17, section d).

Overall ran the 2.0 inch (5.1 cm) thick peaty earth, merging into the peat layer 5.0 - 6.0 inches (12.62-15.15 cm) thick over the crest of the dyke.

The accumulation of some 4.5 inches (11.37 cm) of soil between road and dyke-base renders to the road a considerable antiquity, for the dyke, itself encased in some 7.0 - 8.0 inches (17.77-20.2 cm) of peat growth, cannot have been constructed, as we have seen, later than the fifteenth and probably the thirteenth century.

A second trench was cut through the road 15 feet (4.58 m) south of the 1970 cut. The width between ditches was 16 feet (4.88 m), and despite the reversal of slope the shallow ditch continued on the east and the deeper ditch on the west, but here peat deeper than 4.0 inches (19.1 cm) was present when the road terrace was prepared, for in its grading the peat had been levelled to leave 4.0 inches (10.1 cm) along the west side but had been removed completely from the east. There was exposed the upper level of subsoil, a dirty leached grey-to-yellow clay over the red matrix (Figure 18).

On the terrace was laid a bedding of the turfy grey clay, stoney and consolidated but not consistently metalled. To retain it, the forward edge of the peat had been replaced along the west side by a hard ridge of stones in grey clay, above which ran a large cobble kerb to retain not only the clay bedding but also the overlying road. On the east, the bedding rested on the subsoil without kerbing.

The road was a hard compacted layer of red clay liberally stiffened with small stones and probably derived mainly from the west ditch, the persistence of which along one side of the road, despite configuration, suggests that it was a quarry ditch.

We may compare our results with those of 1970, when it was recorded that the road, c. 16 feet (4.88 m) wide, consisted of light metalling edged with small stones resting on 1.0 inch (2.55 cm) of peat and covered with unsurfaced clay. The overgrowth of 4.0 inches (10.1 cm) of peat was referred to as a rapid local regeneration, not understood (Ardlamont correspondence).

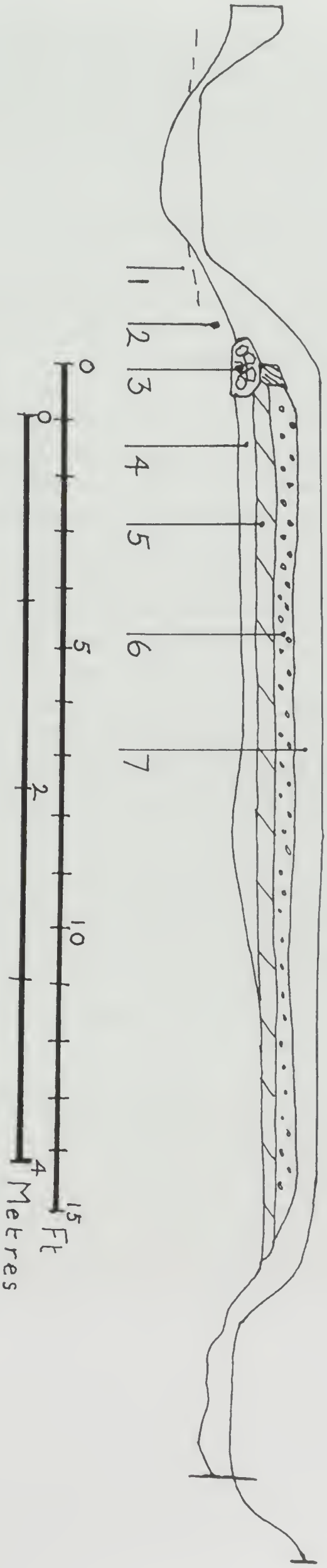
In our section, only 15 feet (4.58 m) away, the overlying peat was 5.0 inches (12.62 m) thick, but the lower peat was thicker and the lower road metalling, giving way to clay bedding 3.0 inches (7.6 cms) thick, supported the 4.0 inch (10.1 cm) thick red clay road.

The west ditch was 5.0 feet (1.53 m) wide and 2.0 feet 3 inches (0.69 m) deep from the present surface, but only 1.0 foot 3 inches (0.38m) from its contemporary level. The upper 1.0 foot (0.33 m) thickness of peat which continued to the west

Figure 18

Trench 2
Section of moor road near woodland boundary

1. Leached turfy dirty yellowish-grey upper subsoil.
2. Red clay subsoil.
3. Kerb of cobbles in grey clay.
4. Pre-road peat.
5. Bedding layer of dirty dark-grey clay, humus-like and containing stones irregularly spaced.
6. Road of red clay fortified with small stones.
7. Post-road peat.


1
2
3
4
5
6
7
0
0
5
10
15 Ft
2
4 Metres

would suggest that some 7.0 inches (17.77 cm) of peat originally covered the terraced ground when the road was laid down. The east ditch was not fully excavated, but was 7.0 - 8.0 inches (17.77 - 20.2 cm) deep by c. 5.0 feet (1.53 m) wide. The later drains were dug into the peat over the ditches.

Post Excavations

In 1984 the moorland (c) was deep-drained in preparation for tree planting. One main drain ran lengthwise along the road, allowing an overall survey which was undertaken by F. Newall and H.M. Sinclair.

Just north of the turf dyke, the road was a mere thickening of metal over the natural clay without underlying peat. Without fore-knowledge this would not have been recognised, for the plough tends to blur the sides of the trench. A short distance to the north, however, underlying peat was present, and over the greater extent of the moorland length the road is a compacted band of red clay and small stones 4.0 - 5.0 inches (10.1 - 12.262 cm) thick, sandwiched in peat 7.0 - 9.0 inches (17.77 - 22.75 cm) above and 7.0 inches (17.77 cm) below. Where undisturbed the peat is c. 1.0 foot 5 inches (0.43 m) deep.

In the marshy hollow some 75 metres south of the woodland (d) an apparent culvert had been disturbed by a transverse drain. This was trowelled and found to be not a covered culvert but an 8.0 foot (2.44 m) line of large stones, laid on and partly cut into the road surface and under only 3.0 inches (7.6 cm) of peat. The road, at this point 15 feet (4.58 m) wide between ditches, lay under 10 inches (25.28 cm) of peat and over a muddy peaty layer 1.0 foot 7 inches (0.49) deep. We presume that the stones form the side of a drain cut through marshy peat at the point where the secondary track is now sunk. At no point is this later track reinforced by an artificial surface.

Conclusions

The excavations have shown that the early road preceded by a considerable time a mediaeval turf boundary; indeed the 4.5 inches (11.4 cm) of soil between road and dyke would assign the former to a period much earlier than the establishment of the great estates. Assuming - perhaps wongly - a low population density for this period, we would tend to seek the necessary expertise and manpower in the Roman army, but without a precise method of assessing the duration of the accumulated soil over the road, it would be open to question.

Fortunately the overall sectioning provided by the forestry drains has provided a comparative time scale. We have established that in Renfrewshire the peat cover was forming shortly before the beaker settlement at Gryffe Reservoir, i.e. c. 1800 B.C. (Newall, 1972: 44, 54), while over the moorlands of Renfrewshire, Ayrshire and Lanarkshire the Roman road sections persistently reveal a lens of reinforced clay sandwiched almost centrally in peat (Newall and Lonie, 1990a: 14). At Outerwards, peat preserved beneath the upcast from the east ditch was almost as thick as the peat above it (Newall, 1976: 113), while for some distance north and south of the Roman post the road had peat 6.0 - 7.0 inches (15.15-17.77 cm) thick above and below it (Newall and Lonie, 1990b: 38-39). Accepting this natural chronometer, we felt able to assign to the Middle Bronze Age the round houses at Martin Glen close to the Roman fortlet (Newall and Newall, 1980). The situation over the moor (c) north of Corra, where the road lies between layers of peat 7.0 inches (17.77 cm) below and 7.0 - 9.0 inches (17.77 - 22.75 cm) above, so closely reflects the situation of the Roman roads indicated above that we consider we may safely accept the roads as contemporary.

Indeed with peat accumulating from c. 1800 B.C., with a break from c. 80 A.D. to c. 200 A.D., the above recorded depths of pre-Roman and post-Roman peat accord closely with the time limits. Nor do we accept sudden accumulation, for apart from the obvious fact that, whatever the weather, each year has its one season of growth, the peat infill of the ditch terminals at Outerwards exhibited layers of peat of almost equal thickness separated by thin bands of denser growth, revealing a fairly regular cycle probably responsive to weather conditions. A similar conclusion was drawn by Smith in his study of stalactites at Cleaves Cove, Dalry (Smith, 1894: 15).

As to Roman analogies, the most obvious is the change from a carefully constructed metalled road over firm ground to a plastic reinforced clay layer over peat; while the scoop ditch along one side to provide road material is acceptable Roman practice (Margary, 1973: 14). This apart, we have the not uncommon Roman method of allowing for settling at the centre of rampart or road under the weight of traffic.

In the case of fort ramparts, we often find an earthen core encased in consolidated clay checks or turf revetments, which when bound with growing grass contain the core as it settles. This apart, we may find that the cobbled base, where present, is interrupted along the centre, as at Bothwellhaugh (Davidson, 1952: 117), Croy Hill (Macdonald, 1932: 245) where the base is cobbled for 6.0 feet (1.83 m) on each side to leave a gap 8.0 - 9.0 feet (2.44 - 2.75 m) wide, Cadder (Clarke, 1933: 9), and Outerwards (Newall, 1976: 122) where a central layer of

clay lay between cobbling 5.0 feet (1.53 m) wide in front and 4.0 feet (1.22 m) wide at the rear.

With the wide cobbled kerb-like side bands of the under road at Corra, we may compare the very wide "kerbs" of the road at Leyburnhold Gill (Margary, 1973: 441). The reinforced scarped shoulders of the agger find parallel in larger scale at Ardoch (Breeze, 1973: 122-124) and on the Rheims-Trier road at Florenville (Chevallier, 1989: 87 - section).

The end result is the same, for the road is allowed to settle to a firm core between the hard shoulders while the central metalling at the surface ensures that pressure is maintained over the core.

This is especially demonstrated where the road is carried over very marshy ground on an earthen agger wide enough to leave clear shoulders on each side. To metal overall would be to allow slip towards the ditches; to fail to reinforce the shoulders would be to expose the sides to erosion.

Finally there is the purposeful directness of layout; with one fixed straight length from the shore to the side of Corra farmhouse and, with a slight switch farther west, one direct length to the north end of the wood (d) where it appears to turn to the heights.

We conclude that the "road to the sea" is Roman, laid to direct men landed from a ship to a fixed signalling point. With such a facility the inner Clyde estuary becomes a closed waterway. It is interesting that the Roman-based road near Hunterston, on the opposite side of the estuary, was also once known as the *Haaf-weg*, the road to the sea.

The distance from the heights above Ardlamont to Outerwards is c. 14 miles (22.5 km). Thus a simple fire signal to warn of impending danger from the west might have sufficed, but there is always the possibility of intermediate posts on Bute and the Cumbraes.

Acknowledgements

Apart from those mentioned in the report, we are further indebted to those who assisted with the excavations, namely Mr. Karl Knoop of the U.S. Navy, Mr. David Newall, Mr. George Newall, Mr. Harry M. Sinclair, and to Mrs Ina Christian, Ms. Mollie McNair and Mrs Margaret Stewart, members of Cowal Archaeological Society.

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Mr. Frank Newall, 6 Cherryhill, Hunter Street,
Kirn, DUNOON, Argyll PA23 8DW.

Miss Elizabeth B. Rennie, Upper Netherby,
46 Hunter Street, Kirn, DUNOON, Argyll PA23 8DT.

CORRECT DATING OF THE EARLY YEARS OF THE SCOTTISH NATURALIST, 1871 to 1891

By J.A. GIBSON
Representative for Scotland,
Society for the History of Natural History

Introduction

Last century it was a common practice, with journals which contained several published parts in a volume, to issue a Title-Page with the last part of the volume, with the Title-Page bearing the date of publication of the last part.

Clearly, if all parts of the journal were published during the same year, this did not matter, since the date on the Title-Page would then be correct. It was a very different situation, however, if the individual parts of the volume covered several years. Since the Title-Page frequently bore simply the date of the last part, later research workers who were unaware of this practice were often misled into incorrectly dating papers or other contributions which had appeared in an earlier part, sometimes several years previously. Indeed, even if one was actually aware of the inherent dangers of incorrect dating, when volumes had been bound without including the original wrappers (an unfortunately all too common practice) there could sometimes be no way of dating, or even identifying, the separate parts.

Sometimes separate parts had a number or date at the commencement of each part, but this was by no means universal, and in fact, in the very early days of natural history publication, some contributions were simply bluntly divided, finishing erratically at the end of one part and continuing without interruption (or any note about 'continuation') at the beginning of the next part, with no means whatever, without the original wrappers, of identifying, in a bound volume, where the division had taken place.

In older journals, with separate parts extending over several years, this lack of knowledge could easily lead, at the simplest level, to mistakes of several years in dating papers, and at the other extreme to possible difficulties in establishing zoological priority. I have drawn attention to this problem many times, when warning about the possible pitfalls, but one still see such errors appearing in print, although thankfully not so frequently nowadays.

Scottish Naturalist: Early Years

Fortunately, this problem does not affect the early years of our national journal of Scottish natural history, *The Scottish Naturalist*, at least not in the same fashion, for even although, with the early assigned volume numbers, a volume extended over two years, the dates of the two years were correctly given on each Title-Page. What was not clear, however, was where the division between the two years took place, since, as already mentioned, in a volume bound without the inclusion of the original paper covers there was often no other indication of the dates or the extent of the original parts.

By the later years of the earlier volumes, each part consisted of a standard 48 pages, and by the time of the commencement of the New Series in 1883 this size had become well established, thus making it possible, if this fact were known, to work out where the date-change took place in each volume.

This, however, was certainly not the case in the earlier years, and even later could not be relied upon entirely, since at the commencement of the New Series in 1883, when publication of the journal passed from W. Blackwood & Sons of Edinburgh to S. Cowan & Co. of Perth, there was a publication delay of six months, so that instead of the normal four parts a year (the standard practice from 1871 to 1891), only two parts were issued during 1883, a fact which cannot be ascertained from a bound volume which does not include the original wrappers.

Another problem is that in a few cases in the New Series, some of the individual parts, by editorial, or more probably by printer, error, bore the incorrect part number.

As is apparently fairly well known, I am very fortunate in possessing two complete sets of the *Scottish Naturalist*, one bound with all the original wrappers intact since the commencement, and following the publication of the paper on the correct dating of the *New Statistical Account* (Gibson, 1995) I have received several requests to publish an account of the correct dating and pagination of the *Scottish Naturalist*.

A complete publication record of the *Scottish Naturalist* was actually promised as long ago as 1983, and hopefully will now be appearing fairly soon, but in the meantime I agree that a correct dating/pagination record of the *Scottish Naturalist's* early years, which do exhibit some problems, would be very desirable.

Early Years: Three Series

The first stage of the *Scottish Naturalist* ran from 1871 to 1891, published in three series:

The First (not named as such) from 1871 to 1882, numbered as six two-year volumes, 1-6; the New Series from 1883 to 1890, numbered as four two-year volumes, 1-4 (also numbered on the Title-Pages as Volume 7 to Volume 10 from the beginning); and the Third Series, a single year of four parts published in 1891, after which the journal was acquired by J.A. Harvie-Brown and had its name changed to the *Annals of Scottish Natural History*.

The full publication details of the three series are set out below.

THE SCOTTISH NATURALIST

Publication details of the Three Series

1871-1882, 1883-1890, 1891

The following notes apply:

For each Series, the names of the Editor and the publishers are given at the commencement of each relevant section.

The part numbers given are those printed on the original paper wrappers of the separate parts. In four cases in the New Series, these numbers were incorrect; the numbers actually printed are listed, with the correct numbers given in brackets.

In the following list, all the original Roman numerals which were used for the volumes and parts have been changed into standard English numbers.

For easy reference, the pagination of the individual years has also been summarised in Table 1.

[First] Series, 1871-1882

Editor: Dr. F. Buchanan White.
Perth: Perthshire Society of Natural Science.

1871	Vol. 1.	No.	1.	January 1871	1-32
		No.	2.	April 1871	33-64
		No.	3.	July 1871	65-96
		No.	4.	October 1871	97-128

1872		No. 5.	January 1872	129-168
		No. 6.	April 1872	169-208
		No. 7.	July 1872	209-248
		No. 8.	October 1872	249-280
			Includes Title-Page and Index for Vol. 1.	
1873	Vol. 2.	No. 9.	January 1873	1-48
		No. 10.	April 1873	49-96
		No. 11.	July 1873	97-144
		No. 12.	October 1873	145-192
1874		No. 13.	January 1874	193-240
		No. 14.	April 1874	241-288
		No. 15.	July 1874	289-336
		No. 16.	October 1874	337-384
1875	Vol. 3.	No. 17.	January 1875	1-40
			Includes Title-Page and Index for Vol. 2.	
		No. 18.	April 1875	41-88
		No. 19.	July 1875	89-136
		No. 20.	October 1875	137-184
1876		No. 21.	January 1876	185-232
		No. 22.	April 1876	233-280
		No. 23.	July 1876	281-328
		No. 24.	October 1876	329-376
1877	Vol. 4.	No. 25.	January 1877	1-36
			Includes Title-Page and Index for Vol. 3.	
		No. 26.	April 1877	37-84
		No. 27.	July 1877	85-132
		No. 28.	October 1877	133-180

Editor: Dr. F. Buchanan White.
Edinburgh: William Blackwood & Sons.

1878	No. 29.	January 1878	181-228
	No. 30.	April 1878	229-276
	No. 31.	July 1878	277-324
	No. 32.	October 1878	325-364
		Includes Title-Page and Index for Vol. 4.	

Table 1

The Scottish Naturalist

1871 to 1891

Concise Guide to Yearly Pagination

1871	001-128
1872	129-280
1873	001-192
1874	193-384
1875	001-184
1876	185-376
1877	001-180
1878	181-364
1879	001-192
1880	193-378
1881	001-192
1882	193-378
1883	001-096
1884	097-288
1885	001-192
1885	193-384
1887	001-192
1888	193-384
1889	001-192
1890	193-384
1891	001-196

1879	Vol. 5.	No. 33.	January 1879	1-48
		No. 34.	April 1879	49-96
		No. 35.	July 1879	97-144
		No. 36.	October 1879	145-192
1880		No. 37.	January 1880	193-240
		No. 38.	April 1880	241-288
		No. 39.	July 1880	289-336
		No. 40.	October 1880	337-378
			Includes Title-Page and Index for Vol. 5.	
1881	Vol. 6.	No. 41.	January 1881	1-48
		No. 42.	April 1881	49-96
		No. 43.	July 1881	97-144
		No. 44.	October 1881	145-192
1882		No. 45.	January 1882	193-240
		No. 46.	April 1882	241-288
		No. 47.	July 1882	289-336
		No. 48.	October 1882	337-378
			Includes Title-Page and Index for Vol. 6.	

New Series, 1883-1890

Editor: Professor James W.H. Trail.
Perth: S. Cowan & Co.

1883	Vol. 1.	No. 1.	July 1883	1-48
	(NS)	No. 2.	October 1883	49-96
1884		No. 3.	January 1884	97-144
		No. 4.	April 1884	145-192
		No. 5.	July 1884	193-240
		No. 6.	October 1884	241-288
			Includes Title-Page and Index for Vol. 1. (NS) (Vol. 7.)	
1885	Vol. 2.	No. 7.	January 1885	1-48
	(NS)	No. 8.	April 1885	49-96
		No. 9.	July 1885	97-144
		No. 10.	October 1885	145-192

1886		No. 11.	January 1886	193-240
		No. 12.	April 1886	241-288
		No. 12. (13)	July 1886	289-336
		No. 13. (14)	October 1886	337-384
		Includes Title-Page and Index for Vol. 2. (NS) (Vol. 8.)		
1887	Vol. 3.	No. 14. (15)	January 1887	1-48
	(NS)	No. 16.	April 1887	49-96
		No. 17.	July 1887	97-144
		No. 18.	October 1887	145-192
1888		No. 19.	January 1888	193-240
		No. 20.	April 1888	241-288
		No. 20. (21)	July 1888	289-336
		No. 22.	October 1888	337-384
1889	Vol. 4.	No. 23.	January 1889	1-48
	(NS)	Includes Title-Page and Index for Vol. 3. (NS) (Vol. 9.)		
		No. 24.	April 1889	49-96
		No. 25.	July 1889	97-144
		No. 26.	October 1889	145-192
1890		No. 27.	January 1890	193-240
		No. 28.	April 1890	241-288
		No. 29.	July 1890	289-336
		No. 30.	October 1890	337-384
		Includes Title-Page and Index for Vol. 4. (NS) (Vol. 10.)		

Third Series, 1891

Editor: W. Eagle Clarke.
Perth: S. Cowan & Co.

1891	Vol. 1.	No. 31.	January 1891	1-48
(3rd series)		No. 32.	April 1891	49-96
		No. 33.	July 1891	97-144
		No. 34.	October 1891	145-196

The Title-Page for Vol. 1. (3rd series), incorrectly entitled
Volume 5. - New Series (Vol. 11)
was issued with the second part of the
Annals of Scottish Natural History (1892).

The Third Series came to a sudden, unannounced, halt at the end of 1891. J.A. Harvie-Brown purchased the journal from the publishers (S. Cowan & Co. of Perth), renamed it "*The Annals of Scottish Natural History*, a Quarterly Magazine, with which is incorporated *The Scottish Naturalist*" (but with no mention of the 'take-over' being made in the first Editorial), and edited it along with W. Eagle Clarke and James W.H. Trail, the editors of the two previous series, from 1892 to 1911, after which the title of the journal was restored to *The Scottish Naturalist*, in 1912. Publication was continued quarterly, without any break either in 1891/1892 or in 1911/1912. The journal commenced monthly publication in 1912.

Third Series, Title-Page

A Title-Page for the Third Series of 1891 (but not an Index) was issued with the second part of the *Annals of Scottish Natural History* the following year. Unfortunately there is a serious contradiction, since the Title-Page for 1891, as distributed with the second part of the *Annals of Scottish Natural History* in April 1892, is inscribed:

Volume 5. - New Series
(Volume 11 from the beginning)

This is obviously at variance with the titling of the individual parts, which are all named Third Series. It seems fairly clear what must have happened. Harvie-Brown apparently acquired the journal suddenly and unexpectedly, so that the 'Third Series', which would have been expected to continue for some time, came to a sudden abrupt halt after only one year. Since it had only lasted one year, it might have seemed reasonable at the time to regard, and to re-describe, this single year of 1891 simply as a continuation of the New (second) Series, despite what had already been printed on the covers, and so issue a Title-Page accordingly. No doubt this seemed a simple and convenient solution to an unusual situation.

Clearly, however, this was an error, which, in the absence of any editorial comment, could only lead to further confusion. The year 1891 should correctly be regarded as the Third Series, its original title.

Conclusion

It is hoped that this paper, which provides the necessary publication details in easily accessible form, will now bring to an end the many dating errors which have appeared in the past when referring to papers in the early years of the *Scottish Naturalist*.

Any difficulties can be obviated by referring to the Journal from 1871 to 1891 entirely by year of publication, and ignoring any volume numbers. This procedure is recommended.

Reference

Gibson, J.A. (1995). The New Statistical Account of Scotland, 1834-45: correct publication dates of the parish accounts. *Scottish Naturalist*, **107**: 3-52.

Dr. J.A. Gibson, Scottish Natural History Library,
Foremount House, KILBARCHAN, Renfrewshire PA10 2EZ.

SHIP RAT *Rattus rattus* CONFIRMED ON SHIANT ISLANDS

By STEWART ANGUS
Scottish Natural Heritage, Stornoway

and PETER G. HOPKINS
Newton Stewart, Wigtownshire

Introduction

The Shiant Islands lie between south-east Lewis and Skye, separated from the nearest part of Lewis, Gob Rubha Uisenis, by the 6.5km wide Sound of Shiant. Two of the three main islands, Eilean an Tighe (House Island) and Garbh Eilean (Rough Island), are connected by a shingle and cobble ridge which is covered only by the highest tides and in storms; to the east is the third main island, Eilean Mhuire.

Many literary references include anecdotal information about encounters with rats. Scott-Moncrieff (1952: 132) describes how the "kindlier Shiant Isles were rendered wretched by a plague of rats which occupied them from a wrecked ship". Douglas Scott spent ten days on the Shiant Islands from 16th to 26th June 1953; he recorded "rats" on Eilean an Tighe but said there were no rats on Eilean Mhuire (Scott, 1954). Brooke (1972), who spent two weeks on the Shiants in June/July 1970 and 1971 as part of a Cambridge University expedition, believed that both Ship or Black *Rattus rattus* and Brown Rats *Rattus norvegicus* were present, having colonised from a ship which was wrecked on the Galtachean - a group of rocks lying to the west of Garbh Eilean - in 1900, but in a paper published the following year (1973), mentioned only Ship Rats.

Darling and Boyd (1964: 73) said that the Shiants were "heavily infested with Brown Rats which live in the talus slopes at the foot of the cliffs and feed in summer on the large sea-bird colonies". Boyd and Boyd (1990: 308) claimed that the two rat species co-exist on the Shiants. In *Island Going*, Atkinson (1949) told how Compton Mackenzie, who had bought the islands in 1925, put down cats to control the rats. The Third Edition of the *Handbook of British Mammals* (Taylor, 1991) states of *Rattus rattus*: "Also present for many years on Shiant Isles", citing a personal communication from the ornithologist, David Steventon, who has worked on the birds of the Shiants for many years, as his source. In an article on the filming of a B.B.C. television *Wildlife on One* programme on Puffins

Fratercula arctica, Kenny Taylor (1993) described the hazards of camping in the presence of rats, and the accompanying photograph is of a rat with ears characteristic of the Ship Rat. Taylor did not, however, reveal that the filming took place on the Shiants.

Identification

The two species of rats are notoriously easy to confuse, in that there are black Brown Rats and brown Black Rats as well as specimens which conform to their English name: for this reason the Black Rat *Rattus rattus* is now often known as the Ship Rat and the Brown Rat *Rattus norvegicus* as the Common Rat. 'Text-book' specimens can be identified on the basis of the Ship Rat's longer guard hairs on the back and flanks, the absence of hair on the ears, and the longer, thinner tail. In practice, this is not so easy, and the skull is required for difficult determinations.

April 1974 Expedition

Despite the possibility of two species of rats, one of them the increasingly rare Ship Rat, no one attempted to conduct any work on the rats of the Shiants until April 1974, when one of us (P.G.H.) led an expedition from the Nicolson Institute in Stornoway to the Shiants. A general account of the expedition (Macinnes, 1974) noted that "the brown species of rat was not found".

Twelve traps were set with fish bait over three nights (36 trap nights). Fifteen rats were trapped, the majority on Garbh Eilean in the vicinity of the boulder scree where the Puffins breed. On Eilean an Tighe, there were few rats around the ruins and the cottage, but more were around the *feannagan* (lazy beds) at the base of the escarpment. One rat which had been dissected just prior to the Puffins returning to their breeding areas had numerous operculae of the Common Winkle *Littorina littorea* in its stomach, thus confirming that the rats were indeed feeding on the shore during the winter.

P.G.H. wrote to S.A. in 1976, stating his belief that all the rats were Ship Rats *Rattus rattus*, and giving supporting photographic evidence which certainly seemed to back up the conclusion, but the differences between the two species are such that physical examination is required for a reliable determination.

Brown specimens with white bellies resembling the form *alexandrinus* of *R. rattus* were trapped beside the old house in 1974. The mean body weight was 165g, mean length of body 178 mm, and mean tail length 207 mm. Eight of those trapped were 'grey-black', two 'grey-brown', four 'grey-brown with white belly' and

one 'brown-black with white belly'. Angus (1979) cited these conclusions in a paper on the mammals of the Outer Hebrides.

August 1994 Expedition

S.N.H. set four live traps on the Shiants on 5th August 1994: two near the bothy at grid reference NG 418977 and two in the boulder scree at Carnach Mhór on Garbh Eilean at NG 418985. The traps were all hidden from view in case any overnight visitors caught sight of them and assumed they had been set to catch Puffins. The next day one of the traps on the scree held a female brown-coloured rat which was subsequently confirmed as a Ship Rat. The rat was sent to the National Museum of Scotland, since it is believed to represent the first indisputable evidence of this species on the Shiants. The specimen weighed 248.5g and is registered as NMSZ 1994.082.

Origins

The origins of the Shiants rats have been more difficult to establish than anticipated. There is anecdotal evidence (K.D. Smith, pers. comm. to S.A.) that the rats came off a sinking ship, from which all thirty-two people were sheltered by the resident family for a period of up to one week, prior to them being taken to Stornoway. As noted above, it had been suggested that the ship had been wrecked on the Galtachean, in 1900.

The Register of Wrecks kept in the Customs & Excise office in Stornoway goes back to only 1906, and showed no records of any likely wreck. S.A. attempted to trace the details through the *Highland News* (the *Stornoway Gazette* was not founded until 1917), but found no trace as far back as 1888. The details of older wrecks were traced to the Scottish Record Office, where the only incident remotely resembling the story was that of the *Neda*, a vessel of 374 tons built in 1857, which was bound from Dublin to its home port of Newcastle-upon-Tyne, heading north rather than south because of the direction of the storm. On 23rd January 1876, the weather was "very thick with rain, blowing a whole gale", and the *Neda* became stranded on the S.W. side of Eilean an Tighe. The crew of eleven, together with the Master's wife and child, were saved by "remaining on board said ship until the tide left her, when all hands [indecipherable] over ship's side on to the rocks by means of a rope and were afterwards sheltered in a shepherd's cottage".

The *Inverness Courier* of 3rd February 1876 describes the incident as "Shipwreck at the Shiant Isles - six days on an uninhabited rock". Though the

censuses of 1871 and 1891 mention the Campbell family as inhabiting the Shiants, there is no entry against the islands for 1881, but there is no record of the family elsewhere at this time, and it is likely that the islands were simply forgotten in the census, possibly because they were part of the tack of Park, in the Parish of Lochs, but were also regarded (as they are now) as part of Harris (Bill Lawson, pers. comm. to S.A.).

Some doubt remains over the identity of the wreck which brought the rats; there is no mention of rats by the great Victorian naturalist, J.A. Harvie-Brown, who visited the islands on 19th-20th June 1879, and again on 24th-25th June 1887 in heavy mist. He clearly spoke with the Campbells on both occasions, visiting Eilean an Tighe and Garbh Eilean in 1879 and Eilean Mhuire in 1887. The discrepancies over the date of the wreck, the number of people said to be on board the vessel, and the omission of any mention of rats from the reports by Harvie-Brown (Harvie-Brown, 1884; Harvie-Brown and Buckley, 1888), must leave some room for doubt over the identity and timing of the wreck which brought the rats to the Shiants.

Conclusions

The confirmation of *Rattus rattus* is of considerable importance for nature conservation, in that the Ship Rat, which is a longer-standing resident of Britain than the Common or Brown Rat, is now restricted to only a very few populations in the British Isles, and is officially classified as 'Endangered' in *A Red Data Book for British Mammals* (Morris, 1993). A questionnaire by Twigg (1992) revealed only a few reports, with only Edinburgh and Dundee having other than "occasional" sightings, with all but one of the reports coming from buildings. Morris believed the total British population to be 1,000 at most.

With the exception of the Channel Islands, the only 'open air' population then known was on Lundy in the Bristol Channel, where in 1990 English Nature was contemplating the introduction of a control programme to protect the breeding birds and encourage the return of the Puffin (Morris, 1993). The Common Rat is also present on Lundy, so that the population on the Shiants represents the only single-species population of *R. rattus* outside buildings in Britain. Morris pointed out that "the Puffin remains one of Britain's most numerous seabirds whereas the Black Rat is probably the most endangered British mammal!". Though ornithologists have suggested a control programme on the Shiants to protect breeding seabirds, there has never been a firm proposal for rat control on the Shiants, despite colourful reports to this effect in the press in 1995. Though it could be argued that this population is not truly native, the Ship Rat has colonised

from ships for centuries, and has been established on the Shiants in the wild for probably 100 years, so that it is arguably a 'natural' resident of the islands.

There is clearly a need to find out more about the dynamics of the rat population on the Shiants, particularly with regard to population size and distribution, interactions with birds, and winter food supply. The Shiants not only provide one of the two outdoor British populations, but also an illustration of how rats and seabirds can co-exist, and it would be valuable to ascertain how this operates, prior to any attempt at eradication elsewhere. Indeed, an interesting comparison can be made with the situation on Lundy, where there are two species of rats, and a more dramatic (but not indisputably rat-induced) bird mortality has been noted (Wolton, 1995). A team of biologists from Scottish Natural Heritage visited the Shiants in July 1995 and carried out work on the rat population which may go some way towards providing answers to these questions.

Acknowledgements

Much assistance from libraries was received in researching the origins of the rats, and special thanks are due to Mr. David Fowler and other staff of Stornoway Public Library, as well as to the Scottish Record Office, who obligingly supplied seven volumes at short notice from a telephone inquiry. Mr. K.D. Smith gave freely of his wide knowledge of the history of the Shiants, as did Mr. Bill Lawson and Dr. Mary Harman. Trapping assistance on the Shiants was supplied by Mr. David Maclennan, Mrs Shirley Gilmour and Mr. Martin Smith. Mr. John Love helped with background information, while Mr. Kenneth Macleod and Mr. D. Morrison of H.M. Customs & Excise, Stornoway, gave access to their old files. Dr. Andrew Kitchener, of the National Museums of Scotland, was most helpful in confirming the identity of the 1994 rat and in helping with researches on the Museum's study collection. Mr. Ray Collier of S.N.H. kindly supplied some recent background information on the Ship Rat in Scotland from his own files, while Dr. Robert Wolton of English Nature kindly agreed to allow quotation from his discussion paper for English Nature.

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Mr. Stewart Angus,
18 Braigh Road, STORNOWAY, Isle of Lewis HS2 0BQ.

Mr. Peter G. Hopkins,
Barbuchany, NEWTON STEWART, Wigtownshire DG8 6QE.

SHORT NOTES

HEDGEHOGS AT STRACHUR, LOCH FYNESIDE

We regularly visit the village of Strachur on Loch Fyneside, in the Cowal district of Argyll, and during the past five years we have seen an occasional Hedgehog *Erinaceus europaeus* ; this year (1997) we have seen three. Before this, we had not seen a Hedgehog in the area for a great many years; in fact, to the best of our knowledge, not since the late 1940s. Enquiries made from friends and colleagues who live locally have produced statements along the lines that "Hedgehogs are beginning to re-appear after a very long absence".

With a small animal as popular as the Hedgehog the possibility of introduction, as opposed to natural spread, must always be considered, but we have no evidence either way. At any rate, Hedgehogs now appear to be present in this area of Argyll in small numbers, and hopefully will remain and increase. The 10km square concerned is NN00 for the Strachur area; this is an addition to the *Atlas of Cowal Vertebrates* (1980).

J.A. Gibson and M.M. Baxter

NEW RECORD OF RED SQUIRREL IN SOUTH ARGYLL

On 8th August 1996 I found a recently dead Red Squirrel *Sciurus vulgaris* on the roadside near the head of Loch Fyne. The rear part of its body had been crushed, and it had presumably been killed by a passing car or lorry. I had been in the area for several days, with considerable time spent in the surrounding woodland, but had not even suspected the presence of any squirrels.

The 10km square where the squirrel was found was just within the boundary of NN11, which therefore raises the current square in the *Atlas of Mid-Argyll Vertebrates* from 'former occurrence' to 'recently confirmed'. I made several enquiries throughout the neighbouring district, but could find no-one who had any prior knowledge of squirrels in the area, so this may be an indication of very recent extension of the Red Squirrel's territory into the area.

Only time will tell, but in the meantime it is heartening to have at least this slender evidence of the presence of an animal which is becoming increasingly scarce throughout the country.

J. Lawson

ORANGE TIP BUTTERFLY ON THE ISLAND OF BUTE

Within recent years the Orange Tip butterfly *Anthocharis cardamines,* formerly a fairly uncommon species in the West of Scotland, has been recorded with increasing frequency from lowland Clyde, particularly in Renfrewshire and Ayrshire.

Until this year (1997) I had not personally found it in Highland Clyde or on any of the Clyde islands, but during the last two weeks of May 1997 I recorded four single specimens from three areas, widely separated, near Kilchattan Bay and Ardscalpsie on the Island of Bute.

The Orange Tip is an addition to the list of butterflies recorded for the Island of Bute (Gibson, 1990), and I shall certainly be grateful to hear of any other occurrences.

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J.A. Gibson

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